UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/043,597	01/09/2002	Dan Gunderson	Q02-1001-US1	2314

7590 08/27/2004

ROBERT A SALTZBERG
MORRISON AN FOERSTER LLP
425 MARKET STREET
SAN FRANCISCO, CA 94105

EXAMINER	
FIGUEROA, NATALIA	
ART UNIT	**PAPER NUMBER**
2651	

DATE MAILED: 08/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/043,597	Applicant(s) GUNDERSON ET AL.	
	Examiner Natalia Figueroa	Art Unit 2651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,8-11,14-19,23-28,30,31,34 and 35* is/are rejected.

7)☒ Claim(s) *5-7,12,13,20-22,29,32,33 and 36* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7, 04/23/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on April 23, 2003 (23/04/2003) is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because:

- For figure 1, applicant does not disclose reference number "26", see specification (page 4, line 31).
- For figure 1, applicant does not disclose reference number "162", see specification (page 6, line 21).
- For figure 2, applicant does not disclose reference number "204", see specification (page 7, line 27).
- In figure 4, a replacement, readable drawing sheet should be provided, e.g. reference numbers are blurry.

3. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to

obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claim 35 is objected to because of the following informalities: Review claim 35, after "according to" the word--steps-- should be inserted. Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, 8-9, 14-17, 23-25, 28 and 34-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Melbye (USPN 6,233,109).

Regarding claim 1, Melbye discloses a method of improving data playback error performance in data storage devices for storing data on removable data recording media (abstract and col. 1, lines 38-51), each data storage device having multiple read/write heads for recording data to the media during a write process and for playing back data from the media during a read process (col. 2, lines 50-64 and fig. 1), comprising the steps of (a) selecting a target error rate for recording data during the write process, for one or more of the data storage devices (or error correction code integrity col. 3, lines 60-67); and (b) for each data storage device, determining a dither value for each head in the data storage device, wherein for each head, using the

corresponding dither value for the write process essentially provides said selected target error for all the heads (col. 4, lines 5-14).

Regarding claim 2, Brush et al is relied upon for the same reasons of rejection as stated above. Melbye further disclose the writing data blocks to the media (col. 3, lines 11-16); and reading said data blocks from the media while introducing dither into the read back signal as a function of the dither value (col. 4, lines 5-14).

Regarding claim 8, Melbye further discloses writing data blocks with that head to while reading the data blocks and introducing dither into the read signal in the head as a function of the determined dither value for the head (col. 4, lines 5-14 and col. 4, lines 36-62).

Regarding claim 9, Melbye further discloses during a read process for each head, reading data with that head is without dithering (col. 4, lines 36-60).

Regarding claim 14, Melbye further discloses that the storage device comprises a tape drive including multiple transducer heads (col. 2, lines 50-64), and the recording media comprises magnetic tapes (col. 2, lines 47-50).

Regarding claim 15, Melbye discloses method of improving data playback error performance in data storage devices for storing data on removable data recording media (abstract and col. 1, lines 38-51), each data storage device having multiple read/write heads for recording data to the media during a write process and for playing back data from the media during a read process (col. 2, lines 50-64 and fig. 1), comprising the steps of (a) selecting a target error rate for recording data during the write process, for one or more of the data storage devices (or error correction code integrity col. 3, lines 60-67); and (b) for each data storage device, determining the amount by which to artificially degrade the read signal during the write process for each head

in the data storage device to essentially provide said selected target error rate for all the heads (col. 4, lines 5-14).

Regarding claims 16 and 17, claims 16 and 17 have limitations similar to those treated in claims 1 and 2 in the above rejection(s), and are met by the same rejections of anticipation as discussed in the above references.

Regarding claim 23-25, apparatus claims 23-25 are drawn to the apparatus corresponding to the method of using same as claimed in claims 1-2 and 9. Therefore apparatus claims 23-25 correspond to method claims 1-2 and 9, and are rejected for the same reasons of anticipation as used above.

Regarding claim 28, apparatus claim 28 is drawn to the apparatus corresponding to the method of using same as claimed in claim 9. Therefore apparatus claim 28 corresponds to method claim 9, and is rejected for the same reasons of anticipation as used above.

Regarding claim 34, apparatus claim 34 is drawn to the apparatus corresponding to the method of using same as claimed in claim 14. Therefore apparatus claim 34 corresponds to method claim 14, and is rejected for the same reasons of anticipation as used above.

Regarding claim 35, apparatus claim 35 is drawn to the apparatus corresponding to the method of using same as claimed in claim 1. Therefore apparatus claim 35 corresponds to method claim 1, and is rejected for the same reasons of anticipation as used above.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 3, 4, 18, 19, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Melbye in view of Christensen et al (USPN 5,233,487).

Regarding claim 3, Melbye is relied upon for the same reasons of rejection as stated above. Melbye fails to explicitly disclose determining the error rate of the read data; and comparing the read error rate to the target error rate, and repeating the write process if the read error rate is greater than the target error rate.

However, Christensen et al disclose such on (abstract and col. 6, lines 40-52). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to improve upon the method as disclosed by Melbye with the above teachings from Christensen et al to provide for an error detection means that would prevent errors in a storage device hence making the device more reliable and efficient.

Regarding claim 4, Melbye further discloses (1) writing data blocks on a recording media (col. 3, lines 11-16), and reading said data blocks from the media while introducing dither into

the read signal as a function of different dither values (col. 4, lines 5-14); (2) measuring the error rate generated for each dither value (or error correction code integrity col. 3, lines 60-67); and (3) based on the measured error rates, determining a dither value which generates an error rate at essentially the target error rate for that head (col. 3, line 60-col. 4, line 14 and col. 4, lines 36-62).

Regarding claims 18 and 19, Claims 18 and 19 have limitations similar to those treated in claims 3 and 4 in the above rejection(s), and are met by the same rejections of anticipation as discussed in the above references.

Regarding claim 26 and 27, apparatus claims 26 and 27 are drawn to the apparatus corresponding to the method of using same as claimed in claims 3 and 4. Therefore apparatus claims 26 and 27 correspond to method claims 3 and 4, and are rejected for the same reasons of anticipation as used above.

9. Claims 10-11, 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Melbye and Christensen et al and further in view of Solhjell et al (USPN 5,347,407).

Regarding claim 10, Melbye and Christensen et al are relied upon for the same reasons of rejection as stated above. Melbye and Christensen et al fail to explicitly teach detecting a block error while writing a data block on a section of the media, re-writing that data block.

However, Solhjell et al disclose such on (abstract and col. 1, lines 45-57). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to improve upon the method as disclosed by Melbye and Christensen et al with the above

teachings from Solhjell et al to provide means to re-write a block in the presence of errors, hence correcting the data and allowing the data to be recovered.

Regarding claim 11, Melbye and Christensen et al are relied upon for the same reasons of rejection as stated above. Melbye and Christensen et al fail to explicitly teach re-writing the data block on a different section of the media.

However, Solhjell et al disclose such on (abstract and col. 1, lines 45-57). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to improve upon the method as disclosed by Melbye and Christensen et al with the above teachings from Solhjell et al to provide means to re-write a block in the presence of errors, hence correcting the data and allowing the data to be recovered.

Regarding claim 30 and 31, apparatus claims 30 and 31 are drawn to the apparatus corresponding to the method of using same as claimed in claims 10 and 11. Therefore apparatus claims 30 and 31 correspond to method claims 10 and 11, and are rejected for the same reasons of anticipation as used above.

Allowable Subject Matter

10. Claims 5-7, 12-13, 20-22, 29, 32-33 and 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record, and in particular Melbye (USPN 6,233,109), fails to teach or suggest (1) writing data blocks to a first section of the media using a first dither value in a first write process, and measuring the generated error rate for that head, (2) writing data blocks to the

first section media using a second dither value in a second write process, and measuring the generated error rate for that head, (3) if the measured error rate for each dither value is above the target error rate, then repeating steps (1) and (2) for a second section of the media using said first and second dither values, wherein if the measured error rate for the each of the first and second dither values on the second section of the media is above the target error rate, then that head is indicated as a faulty head.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following documents are cited to further show the state of the art with respect to read margining using dither:

a) Brush et al (USPN 4,760,471): Discloses a system for improved playback in a tape.

b) Nagasawa et al (USPN 5,157,563): Discloses an automatic tracking system for a tape.

c) Sakamoto (USPN 4,404,605): Discloses a head tracking control system.

d) Oldershaw et al (USPN 4,935,827): Discloses a tape playback system.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Natalia Figueroa whose telephone number is (703) 305-1260. The examiner can normally be reached on Monday - Thursday 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh N. Tran can be reached on (703) 305-4040. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NFM

SINH TRAN
PRIMARY EXAMINER